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ABSTRACT

This document summarizes the recommendations adopted by the participants of the International Conference on Environmental Education (New Delhi 1981) and presents the "Delhi Declaration on Environmental Education" arising out of discussions at the conference. In addition to a list of general recommendations, lists of other recommendations are presented, focusing on (1) formal education needs (school level, university level, research, and curriculum development); (2) non-formal education (general, training, mass media, role of non-governmental organizations); (3) strategies at national, regional, and international levels; and (4) action plans. In the "Delhi Declaration," individuals, groups, communities, national governments, and national/international voluntary agencies are called on to promote the cause of environmentally acceptable and sustainable development through all-round environmental education campaigns and appropriate action plans. Additional points of the declaration are also presented. The document also includes the inaugural and president's addresses, synopsis of conference trusts, and in appendixes, the organizing committee, conference program, and lists of overseas and Indian participants. (Author/JN)

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INTERNATIONAL CONFERENCE
ON
ENVIRONMENTAL EDUCATION

NEW DELHI, 16–20 DECEMBER, 1981

DECLARATION AND RECOMMENDATIONS

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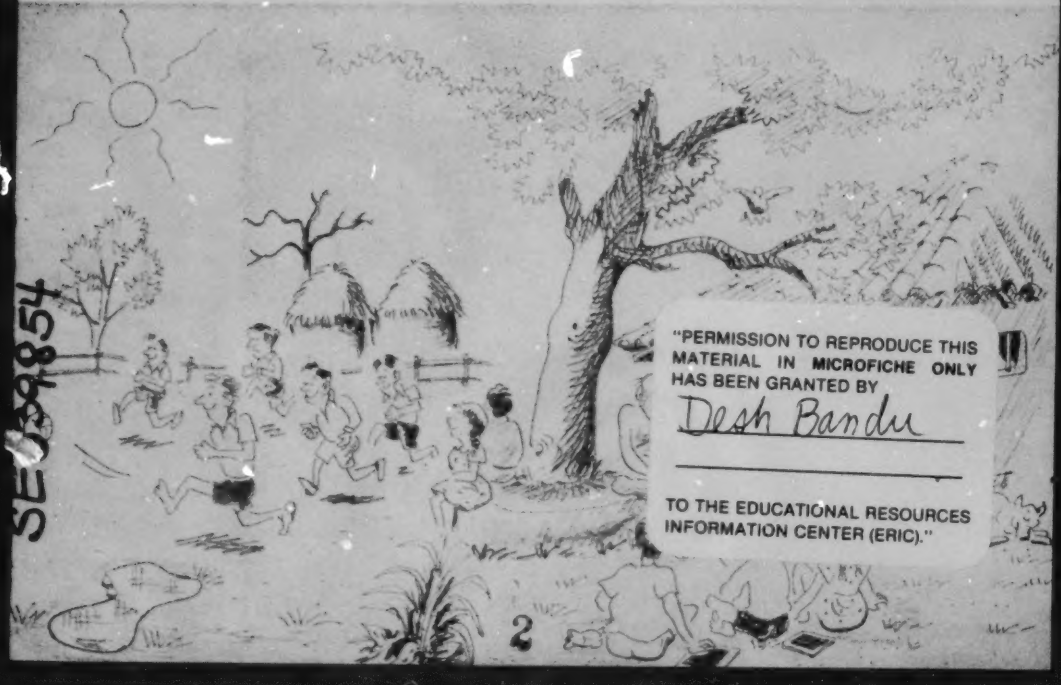

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International Conference on Environmental Education

New Delhi 16-20 December, 1981

DECLARATION AND RECOMMENDATIONS

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N.L. RAMANATHAN
DESH BANDHU

INDIAN ENVIRONMENTAL SOCIETY
AND
DEPARTMENT OF ENVIRONMENT

1982

The Conference was Supported by:

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Foreword

Dr. M.S. SWAMINATHAN

Member, Planning Commission, New Delhi
Chairman, Organising Committee

There is urgent need for generating an awareness of environmental problems in view of the growing conflict between short and long-term goals of development. Sustainable development or eco-development aims at achieving rapid economic growth without destroying the roots which sustain such growth. Quite often ecologists are blamed for retarding the pace of development because of their insistence of analysis of the environmental impact of large developmental projects, particularly when undertaken in fragile eco-systems. The concept that ecology and development are two sides of the same coin should be widely understood. This will be possible only if the community as a whole feels concerned and gets involved in the conservation and enrichment of the environment.

Awareness tends to lead to analysis of issues. Analysis promotes action. Education is fundamental to the fostering of a healthy and dynamic awareness-analysis-action chain. It is for considering the various software aspects of environmental communication and education that the Indian Environmental Society, the Department of Environment of the Government of India, Indian National Science Academy and other organisations got together in organising this Conference. The purpose of the Conference is to examine with the help of suitable case studies, the educational techniques which will help to communicate environmental messages to all sections of the community, young or old. We are grateful to the participants and speakers for their ready response to the request of the Organising Committee.

MARCH, 1, 1982 M.S. SWAMINATHAN

CONTENTS

		Pages
FOREWORD	Dr. M.S. SWAMINATHAN Chairman, Organising Committee & Member, Planning Commission	(iii)
INAUGURAL ADDRESS	Dr. B.P. PAL, F.R.S. Former Chairman, NCEPC	1
PRESIDENT'S ADDRESS	Shri C.P.N. SINGH Minister of State for Environment	9
SYNOPSIS OF CONFERENCE TRUSTS	Dr. N.L. RAMANATHAN Director, Department of Environment	15
CONFERENCE RECOMMENDATIONS		21
RESOLUTION		37
THE DELHI DECLARATION ON ENVIRONMENTAL EDUCATION		41
EPILOGUE		47
ORGANISING COMMITTEE		49
PROGRAMME		51
OVERSEAS PARTICIPANTS		65
INDIAN PARTICIPANTS		69

This publication summaries the recommendations adopted by the participants of the International Conference on Environmental Education, New Delhi, 16-20, 1981 and presents the "Delhi Declaration on Environmental Education" arising out of the discussions at this conference. The proceedings of the conference would follow as a companion publication.

DR. N. L. RAMANATHAN
DR. DESH BANDHU

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Inaugural Address

Dr. B.P. PAL, F.R.S.

Former Chairman

National Committee on Environmental Planning and Coorination

Hon'ble Minister, Dr. Swaminathan, Dr. Jun Ui, Dr. Desh Bandhu, Dr. Ramanathan, I feel honoured to have been invited to inaugurate this International Conference where so many distinguished participants, both from India and abroad, have gathered to discuss a subject so vital for the conservation and proper care of the Biosphere in which we live and from which we draw sustenance.

The International Conference on Human Environment held at Stockholm in June, 1972 constitutes an important landmark, for on that occasion representatives of the nations of the world met for the first time to give serious consideration to the vital question of how the precious environment could be preserved in order that wise generations of human beings may be enabled to draw from it, vast natural resources, in programmes of sustainable development.

One of the most important areas, in this context, is that of Environmental Education. The Stockholm Conference was followed by one at Belgrade in 1975 when a Charter was drawn up setting forth the goals of environmental action. In the same year, UNESCO and UNDP had launched an International Programme in Environmental Education. Subsequently, an inter-governmental conference specially to consider Enviromental Education was organised at Tbilisi. After that, there have been many conferences at various levels to discuss various aspects and facets of the whole question of enviroment in relation to development, keeping in view the tremendous and rapid growth of the human population and its ever mounting demands.

An excellent summary of the present status of Environmental Education, both national and international, was presented by Dr. D. Shankar Narayan at the last meeting of the Indian Science Congress held at Varanasi in January this year where the focal theme of the Conference was: the Impact of the Development of Science and Tech-

nology on Environment. I do not purpose therefore to present any summary of the progress so far made, nor to discuss in detail any of the vast number of issues involved under the title of Environmental Education. These are matters that will be receiving your attention in the course of this Conference. I will merely refer to a few facets only and give you some of my thoughts on these.

The important World Conservation Strategy document released in 1980 states: "Ultimately the behaviour of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured. A new ethic, embracing plants and animals as well as people, is required for human societies to live in harmony with the natural world on which they depend for survival and wellbeing. The long term task of environmental education is to foster or reinforce attitudes and behaviour compatible with this new ethic." The document further recommends that the organizers of education shall determine the main targets for their programmes and suggests that these groups are:

(a) legislators and administrators;
(b) professional bodies and special interest groups;
(c) communities most affected by conservation projects;
(d) school children and students.

One could of course recognise several more groups, for instance, the general masses of people. I would like to refer to the last category of the four classes mentioned a moment ago, namely, school children and relate a rather charming story I read about a school in America where in teaching biology to young students. the evolution theory had been explained in some details; reference had been made to the tremendous changes in climate this planet of ours had undergone and some animals and plants unable to adapt themselves to sudden and largescale climate alterations had died out. Wishing to reassure herself the lesson had been absorbed, the teacher asked the class, "Now can any one tell me why the dinosaurs became extinct"; A little girl held up her hand and said, "Miss, they were too big to get into Noah's ark". I thought that in some ways it was a bright answer. The young student clearly knew they were very large animals but had related her answer to what she had heard in the Bible class about the Great Deluge! I told you this little tale to emphasise the point that we must begin the process of environmental education with little children when they still are at a stage when they look at the world in wonder, are inquisitive about things and, generally, very impressionable.

When we deal with older children, those going to high schools or

colleges, it will be important to link education with practical ongoing programmes because in this category we can hope to find young people fired with imagination and zeal to do things. Here I must refer to a personal experience. Early this month I went to spend an hour at a beautiful chrysanthemum show in the capital. Three teenagers came to me and said they had been shocked and distressed by the way the Delhi Ridge was being encroached upon and the way trees were being destroyed or damaged. They said they recognised that sometimes roads had to be widened or branches of roadside trees lopped to avoid entangled with electric wires, but they were convinced that more trees were being lopped or destroyed than was absolutely necessary because somebody wanted the wood. They explained that they had been to a number of officials but they found they fell into two categories: (i) those who made soothing noises and said "the matter would be looked into", and (ii) those who "passed the buck on". They wanted me to tell them whom they could go to get some positive action. I suggested four names. They said they had already been to two of them, and the third was rarely in Delhi; as for the fourth, they just shook their heads doubtfully. Finally, I suggested a fifth name, that of a retired senior official known for his sympathy for trees and horticulture, and also for his ability to get things done. They thought this was a suggestion worth following up and went away. But I had been moved by their obvious frustration. I also felt sorry I was not able to tell them with some measure of confidence as to where they could urgent, responsive action.

The Delhi Ridge to which I have just made reference is a continuation at a lower level of the Aravalli hills of Rajasthan and plays an important role in moderating the climate of Delhi, acting as a windbreak and providing a large "green lung" for the rapidly expanding metropolis. The National Committee on Environmental Planning and Coordination (NCEPC) at a meeting which I had the privilege of chairing, recommended that the metropolis of India itself should set a good example of conservation of a valuable natural resource which has suffered considerable erosion because of the building of schools and other buildings in spite of a decision at the highest level that no encroachment should be permitted.

Since we now have in the Government of India a new department *i.e.* Department of Environment specially charged with preservation of the environment and the dynamic Minister in charge of that department is here with us this morning, I feel we may look forward to urgent steps being taken to assess the present status of the ridge and to arrange for regular monitoring and other action to save this precious asset of the capital of India. I may mention in passing that the NCEPC further

recommended strongly that the present natural character of the vegetation on the ridge should be conserved and that people should not be allowed to meddle with it in the name of so-called beautification. Delhi, like Rome, is one of the Eternal Cities and deserves special attention to preserve its natural assets and traditional attributes.

One may ask, who are these people who go on nibbling at the ridge and gradually destroying it are they ignorant of the need for conservation, or just insensitive to it? In either case it reflects a failure of our system of general education. It is essential that apart from special courses in evironmental matters for those who need it, a consciousness and awareness of the natural environment and the value of plants and animals, should thoroughly permeate the whole educational system. It is usual to distinguish between education which aims at establishing sensitivity to environmental problems from training which has as its objective the developing and mastering of skills for solving environmental problems and refers to specialised action. The two instances I have cited refer of course to the former category. In this would fall the large majority of the population, the greater portion of which lives in rural areas. People in rural areas are usually closer to nature and do not wantonly destroy or damage natural resources. If such people do destroy trees, it is to satisfy some of their basic needs. Social forestry to which much lip service has been done is still something which has not materialised, in most of the areas. It is a very sad sight to see women of the under-privileged classes in the hills and elsewhere who have no other source of fuel to cook their food, trudging over long distances every day to collect a bundle of sticks. Before preaching the gospel of conservation to such classes of people, it is necessary first to provide the basic necessities of life. The largest amount of damage in fact has been done by industry and trades which take away large quantities of timber without having ensured that fresh plantations of trees are made to keep the resource going.

Apart from education to create awareness for conserving soil, water and living resources, and for preventing pollution, many types of courses are needed to cater to the many and pressing requirements of trained personnel to ensure that the quality of the environment is maintained at the optimum level. In some cases, specialised cadres may need reorientation. For instance many foresters have been trained in production forestry to get the maximum returns from the forest but have not been made aware of the remarkable ecological role played by the forested areas. Engineers who plan and build dams and large irrigation works obviously need to be introduced to the concept and practice of

environmental conservation.

There is also a vital need for suitable books to support the many kinds and levels of environmental education and training programmes that are necessary for ensuring an effective and enlightened handling of environmental problems. Here, I would like to digress a little and refer to the splended achievement of the World Wildlife Fund in creating awareness about the serious threat to wild life, leading to the extinction or near-extinction of many species. This organisation has however concentrated mainly on some of the larger animals and certain birds. Some of the smaller and less glamorous types are also in danger of being lost. Then there is the whole world of plants so important, for instance, for the development and improvement of agriculture and medicine. Somehow they have attracted less of the limelight than animals who would not be able survive in the absence of plant life. Even the Bible story of the Great Flood and Noah's Ark does not, as far as I remember, mention whether Noah took any steps to save the plant species after he had put in a male and female pair of each of the animal species, excepting of course the dinosaurs referred in the story of the school girl! It is necessary that environmental education should disseminate a feeling for the wonder of the Creation, the complexity of the web of life and the inter-relationships between animals, plants and lower organisms, and finally, how man's own survival depends on his being able to live in harmony with nature.

I feel that conservation of the environment should be interpreted in the broadest sense and should include cultural heritage which also is endangered in many ways. We should preserve, undamaged as far as possible, the precious monuments and works of art. We should also conserve areas of great scenic beauty which inspire in man the highest and purest of feeling.

I now come to the concluding portion of my address. I hope that the papers presented will prove informative and fully relevant, and lead to lively discussion. I further trust that clear recommendations will emerge on the policies and programmes which should be followed subject of course to modifications appropriate for the conditions prevailing in each country. I would like to repeat a story which I once told to a conference of scientists in Delhi. This recalls that towards the conclusion of an international conference in which many very eminent persons had participated, the chairman said: "I hope this will not be like the marriage of elephants where everything takes place at a high level, there is a lot of trumpeting, and then nothing happens for about two years". I feel sure that with an Organising Committee

headed by Dr. M.S. Swaminathan, this Conference will not end up with the repetition of well-known platitudes but the discussions by the distinguished delegates will present us with clear recommendations which will enable a clear step forward to be made.

Distinguished Minister, ladies and gentlemen, I offer my best wishes for the success of the Conference which I have very great pleasure in inaugurating.

President's Address

Shri C.P.N. SINGH

Minister of State for Environment
Government of India

Dr. Pal, Dr. Swaminathan, distinguished delegates and friends,

It is an honour to participate in this function which makes the beginning of the International conference on Environmental Education. The size and diversity of the gathering is an indication both of the subject matter and the importance attached thereto. We have had large international conferences on the subject in recent years and it will be necessary for the deliberations here to augment the knowledge and insights gained earlier at Belgrade, Tbilisi and other places.

We in India have benefited from the experience of other nations and international bodies in the field of environmental protection and education. However, the problem we encounter in our context are quantitatively different from those of many other countries and vary widely from one part of this huge country to another. This is obvious when one realises that we have in India the Himalayan eco-system, the Indo-Gangetic plains, the tropical rain forests as well as hot deserts, besides a varied array of intermediary eco-systems. Therefore, the tools and techniques for environmental education will have to be adapted to suit these sharply varying conditions which they must address. Equally varied is the diversity of our people who form the target audience for environmental education. The point is that simple, catch-all approaches to education based on inadequate knowledge of widely varying local conditions will not be of much use.

The protection of environment is a matter of national concern to us. It is reflected in the Directive Principles of State Policy of our Consitution. Recognising the need for a major coordinating body on environment-related action, the Government of India last year set up a full-fledged Department of Environment. An environmental forum of parliamantarians has also been constituted to focus attention on environmental

issues. At the formel levels we have courses in environmental education at a number of institutions of higher learning in the country. Useful research in environmental sciences is being supported by the Department of Environment, the University Grants Commission and other funding bodies. But at a more practical level, it is clear whether adequate employment opportunities have been created for our young people who opt for this field. Such people should not be put to the double disadvantage of unemployment in their area of specialisation on one hand and on the other not being considered for employment where qualifications in the traditional disciplines are required. Perhaps the Government needs closer look at this aspect of coordinating the supply for expertise in this field with creation of demand for it. I am sure this meeting will have a chance to deliberate on this problem. More exciting work in environmental education and training is going on at the non-formal level in India. It is heartening to see a large number of voluntary agencies involved in this field with some of them supported by the Department of Environment. The Sixth Year Plan gives explicit recognition to the role of Non-Government Organisations in environmental protection. One of the more intersting programmes is the organisation of what are called 'Eco-development Camps'. Young people from our academic institutions, in partnership with experienced professional and local citizens, take on the job of reclaiming or renewing environmentally degraded areas through measures like soil-protection, afforestation, etc. While this directly benefits the people of the area through regeneration of natural resources on which they depend, it also provides our youth an excellent opportunity to gain practical and first-hand knowledge of the problems of the environment and ways in which they can be tackled. These camps are being organised through the National Service Scheme and with the efforts of various voluntary groups. The eco-development camps could prove to be a major force in checking environmental degradation.

There is a lesson to be learnt here. Many programmes of environmental education aimed at those who, through force of circumstances, have to exploit natural resources in an environmentally unsound manner, do not provide reasonable or feasible alternatives to meet basic human needs. For instance, it is pointless to ask a poor man up in the himalayan highlands to stop cutting trees for firewood if he has no other meens to cook food and keep himself and his family warm. We all realise this, but continue to develop educational programmes which publicise impractical and ill-thought approaches.

An important long-term solution to these lop-sided policies is proper education of our planners and decision makers. I understand the

Department of Environment is organising training workshops on environmental management with the help of the Administrative Staff College of India. Such short term courses ought to be made mandatory for all our civil servants and technocrats, who sometimes are equally short-sighted. What is not often realised by such people is that environmental considerations must pervade and influence decision making in every sector of out economic, social and cultural life. Environmental management is a total, intergrated approach to sustainable national development and not a separate subject which is the sole concern of the Department of Environment or some voluntary agencies and associations. This is the basic message which environmental educational must seek to propagate.

The Government of India's commitment to environment protection and education is total. Our Honourable Prime Minister has used national and international forums to give a proper perspective and orientation to environmental debates and action in the context of developing countries like India. She has highlighted our age-old roots in environmentally sound ways of living by quoting our scriptures. Environmentalists all over the country have in the past drawn strength from her strong support to tnis cause. We still have a long and difficult path to traverse before we can say that we have successfully reversed the process of environmental damage.

Hence, we have to face the challenge of educating our society of the dangers and more importantly, the tremendous potential for personal and national fulfilment that follows from a prudent and far-sighted use of God-given natural resources. I hope this Conference will lead to a more fruitful expression of our shared concern.

Synopsis of the Conference Thrusts

Dr. N.L. RAMANATHAN

Director

Department of Environment

Being fully conscious of the impending global crisis posed by creeping enivronmental degradation and ecological disruption, the delegates to the International Conference on Environmental Education, New Delhi, 16-20 December 1981, expressed utmost concern and urged governmental and public collaboration in initiating and executing enviromental impovement and ecological restoration programmes. The delegates recognised the urgent need to awaken the environmental conscience of politicians, opinion leaders and statesman, bureaucrats, technocrats, policy planners and decision makers, in the governments, and men, women and children in all walks of life. The delegates advocated that a new and forceful thrust be given to environmental education and awareness programmes in both the formal educational systems at the preschool, school and university levels and in the nonformal public information media for this purpose. For, only by this means can the public be motivated to actively participate in environmental improvement projects at the local, regional and national levels. The delegates were convinced that a rational plan to limit population growth, to utilize wisely available resources, and to choose only development strategies consonant with environmental protection must be drawn up so that human progress can proceed in a sustainable manner in future. The Conference concluded that human progress and environmental protection can and must reinforce each other. Development without destruction is not only possible, but economic development with concurrent environmental enhancement should be our endeavour, for one without the other would tarnish the quality of human life on earth.

The Conference discussed wide ranging topics relevant to environmental education, training, orientation, awareness and research and made several recommendations for specific consideration by appropriate implementation by the governments, public bodies, educational authorities, the mass media, writers, authors, playwrights and non-governmental

organisations. The papers presented in VIII sessions focussed on the status and strategy of environmental education, on methodology of incorporating environmental issues in the curricula for formal education of pupils and professionals, on the role of the media in broadcasting environmental concerns, on the experience of various groups in India and other countries in the field of environmental education and on action plans for promoting environmental education at all levels.

The International Conferenee on Environmental Education raised many important issues of both immediate and long-term nature, and local, regional and international significance. While the conference concluded that the model to be adopted may and must vary from country to country and even from region to region of the same country and must be tailored to fit the language and literacy, the social values and mores, the customs and beliefs, and the lifestyle and aspirations of the people, it was felt that some general principles and strategies could be enunciated.

There was an attempt to define "Environmental Education" and to distinguish formal instruction in the classroom both for inculcating general knowledge and for developing specialised skills from the extra-curricular programmes for children and from the non-formal system for all people using a variety of public information media. The Conference, however, without defining the meaning and scope of Environmental Education, arrived at a consensus that it should:

* View the environment in its totality; thus the environment would include both the natural and man-made systems and embrace the technological, socio-economic, cultural, moral, aesthetic and political aspects, where appropriate;
* Adopt an inter-disciplinary approach, drawing on the specific concepts of each discipline;
* Form a continuous cradle-to-grave process beginning at the pre-school stage;
* Deal explicity with current and potential environmental scenarios, taking into account the historical experience in the same or other countries, and the background of the development process and status of the country;
* Examine illustrative environmental issues at the local, national, regional and international levels, so that geographical insights and global perspectives can be achieved;
* Inculcate that environmental problems are the people's collective concern;

- Promote environmental sensitivity and knowledge;
- Develop a problem-solving attitude;
- Encourage local, national and international cooperation for the prevention and solution of man-made environmental degradation and ecological disruption;
- Introduce the culture of examining the environmental impacts of development alternatives; and
- Enable environmentally-compatible and ecologically-desirable decisions by the individual and the nation.

It was also emphasized that people (men, women and children) should not only be receipients of environmental orientation but also be transmitters of such knowledge to others. Environmental education programme should touch off a chain reaction. It was particularly emphasised that environmental orientation programme must be initiated immediately for women, especially rural women.

The Conference benefited by the addresses presented by eminent educationists and environmental specialists, who highlighted the different aspects of environmental education, in the first session on significance and importance of environmental Education. These keynote address covered the following themes:

1.	Significance of Environmental Education	Dr. (Mrs) Madhuri R. Shah Chairman, University Grants Commission, New Delhi.
2.	Major Requirements for Environmental Educations	Dr. Margaret Biswas and Dr. Asit K. Biswas International Water Resources Association, U.K.
3.	My Lessons of Environmental Education	Prof. R. Misra Banaras Hindu University, Varanasi.
4.	Statement on behalf of IUCN on Environmental Education	Mrs. Julia Martin Lepeure Commission on Education, IUCN.

The following special lectures also evoked allround interest.

1.	Agriculture and Environment	Dr. H.K. Jain, Director, Indian Agricultural Research Institute, New Delhi.

2.	UNEP Programme in Environmental Education	Dr. Peter Thatcher, Deputy Executive Director UNEP, Nairobi.
3.	The Role of Mass Media in Environmental Education	Shri Y. Shara Prasad Information Adviser to the Prime Minister, New Delhi.
4.	Infoterra—UNEP Information system.	Dr. Asok Khosla Director, Infoterra, UNEP, Nairobi.
5.	Save the Soil—Save the Nation	Dr. J.S. Kanwar Director, Research ICRISAT, Hyderabad.

Conference Recommendations

Synthesis prepared by

Dr. N. L. RAMANATHAN

Dr. DESH BANDHU

Dr. VEENA BHARDWAJ

This synthesis is a collection of the various recommendation which arose during the discussions in the different sessions and many write-in recommendations and suggestions from the participants, who were invited by the Chairman of the Conference to do so. An attempt has been made to categorise these recommendations, in spite of the overlap of some of these and the commonality among different categories. Care has been taken to include even the obvious recommendations, in order to achieve comprehensiveness. Apart from specific suggestions which could be categorised, there were a host of thoughtful recommendations which could only be categorised as 'General'. Since most of these were important and concerned with basic strategy for environmental education, it is appropriate to start with this category and end up with the intimate interface between population education and environmental education.

1. GENERAL RECOMMENDATIONS

1. Environmental education programmes in most countries has yet to become fully established and therefore, governments should be urged to emphasise environmental issues in the educational scheme.

2. It was pointed out that deeper understanding of the environment prevailed in the vedic period and that Mahatma Gandhi had included this concept in the basic education scheme. A review of the strategies for creating environmental awareness in the past could give an insight into the approaches necessary in the future.

3. Environmental action needs as pre-requisite, committment at the individual and national level. A clear national policy on environment is thus essential and without this, curriculum development for environmental education would lack direction and purpose.

4. The main hurdle at present appears to be teacher training in

environmental education. Appropriate teacher training programmes and materials for their use must be started without delay in order to implement environmental education programmes in schools.

5. To be meaningful, environmental education must relate to real-world situations and should be linked to current development plans.

6. The multi-disciplinary nature of environmental studies must be recognised and accepted.

7. Further, in view of the influence of the culture, beliefs and literacy of the people on their attitude to the local environment, environmental instruction must integrate cultural, social and development needs and appropriate technologies for development.

8. All sections of human society must be exposed to some form and measure of environmental education for arousing their awareness, sensitivity and perception of environmental problems and thereby motivate them to get involved in worthwhile environmental action programmes.

9. Fundamental issues in the process of studying the environment as systems could be related to one or other specific academic discipline. On the other hand, location-specific, and comprehensive programmes with environment as a single system, are needed to stimulate enlightened decision-making and community action.

10. Environmental education is a long term process beginning at the infant stage and continuing through formal preschool, school, college and university stages and thereafter through nonformal means throughout adult life.

11. Value orientation in environmental education has to be a world movement.

12. Environmental education must be relevant to the immediate environment of the learner in order to be useful and meaningful to him/her.

13. Environmental education policy must conform to other related policies on population regulation, human settlement, land and water, conservation and development.

14. Special attention should be given to environmental education

focussed on non-school going children, adolescents and women.

15. Environmental education is and has to be an integral part of all education programmes and also should become part of social, cultural, and economic development education.

16. It mught be useful to modernise inbuilt religious concepts, relevant to environment and conservation, such as those inherent in *vedas and smrutis*, *puranas*, classical works, Bible, Koran and Torah, and the messages of Buddha, Asoka, Kautilya, Manu, Mahatma Gandhi and so on and incorporate these in the early education of infants, using the technique of story telling in the grandma's laps.

17. Every country and community should develop and implement a master plan for environmental education. The plan should lead to the evolution of an ecological ethos, that is, a change of the present callous atiitude of man towards man, nature, and society.

18. Environmental Education should enable people to perceive the environmental in its totality, that is, the totality of physical, biological, socio-economic and cultural complex it is.

19. Clean environment must be made a fundamental right of all citizens.

20. Environmental education must be aim at enlisting the cooperation and involvement of the people in environmental action.

21. Environmental Impact assessment and its usefulness in anticipatory prevention of environmental abuse should be communicated to everyone.

II RECOMMENDATIONS ON FORMAL EDUCATION NEEDS

A. School Level.

1. There is an urgent need for textbooks and teaching aids for environmental education programmes at all levels. Authoritative books on environmental protection as well as materials such as case studies, photographs, charts, maps, slides, films and other audio-visual aids on environmental problems are necessary. Encouragement and financial assistance to scientists may be given for preparing such materials.

2. Environmental education at school and under graduate levels should aim at creating environmental awareness. At higher levels, the objective should be to develop basic knowledge and skills for tackling and solving environmental problems.

3. Environmental concepts should be integrated in existing courses in physical, natural and social sciences.

4. Students should be exposed to the concept of nature education and the experience of participating in nature conservation programmes, similar to the social forestry programme in Gujarat.

5. Various educational bodies should reorient early education curricula to include environmental issues.

6. Extra carricular environmental programmes for school children are a power ful tool for imparting environmental education to children and should be increasingly encouraged. Such programme should incorporate four elements, namely, adventure, learning, grassroots action and links with both environmental offenders and beneficiaries. Results of such an approach, as illustrated by case studies presented by Mazangira Institute in Kenya and Socleen in Bombay show that environmental awareness of children become not only sharply focussed but eventually leads to successful teaching at the school level also.

7. Several techniques for providing extra curricular environmental education to school children are available. These include sending out by mail or distributing in the class room entertraining children's magazines on environment, organisation of nature and science clubs, visits to exhibitions and museums, organising painting and essay competitions and exhibitions, participation in community environmental action programmes and using songs, plays, folk tales, puppet shows and environmental games and puzzles.

8. At the higher school level, it would be more purposeful to involve youth in seeking and finding solutions to environmental problems and thus inculcate a positive environmental attitude.

9. Correspondence courses in environmental education for elementary and secondary school teachers should be initiated by teacher training institutions like NCERT.

10. Environmental magazines for the use of and by teachers should be brought out.

11. Periodical Workshops and seminars on environmental topics should be arranged for teachers, by organisations like the Indian Environmental Society.

12. Besides textbooks, other kinds of teaching aids for environmental education such as guides, handbooks, slide shows, films, models etc should be developed.

13. Parent-Teacher Associations should discuss environmental education strategies critically and evolve appropriate school-home integration for infusing the right attitude to environment in the children.

14. Programme suited for non-school going and drop out children should also be developed.

B University Level

1. Universities should provide training for graduates, who can assimilate a comprehensive view of the environment and its problems.

2. All graduate courses should allocate a minimal period for class room instruction, discussion or other suitable presentation of environmental topics.

3. At the university level also, it is best to integrate environmental topics into the various subjects streams such as physical, biological, social and economic sciences and in humanities.

4. University Grants Commission or other equivalent body should draw up the syllabi for various disciplines and induce their adoption.

5. Malayasian experience of post graduate diploma courses for teachers has shown that environmental awaraness could be developed through discussion of real-world environmental problems, that skills to identify, analyse and present environmental problems and solutions could be imparted and that development of packages on environmental topics is feasible.

6. Carefully drawn syllabi for environmental training of teachers at the diploma, degree and post graduate levels are urgently needed. These should include ecology, environmental economics, cultural perspectives, causes of pollution and their control, resource manage-

ment, population links and responsibility of man towards the environment.

7. Environmental law should be taught in all law colleges and facilities for specialisation in environmental law should be provided.

8. Graduate and postgradute programmes in environmental management should be started at several centres.

C. **Research**

1. Environmental Research should focus on issues of national concern and lead to strategies of containment and solution and thus help decision makers.

2. Environmental diemensions may be built into existing research projects.

3. An Institute of Environmental Management should be established for undertaking advanced multi-disciplinary research in environmental subjects, for imparting high level training for decision makers, planners, environmental managers and for offering high quality consultancy in environmental technology.

4. An Indian Council of Environmental Research and Training (ICERT) should be set up by the Department of Environment.

D. **Curriculum Development**

1. Regional and national colleges of education and similar institutions should immediately undertake the preparation of suitable curricula, teaching materials and books for environmental education at the school level.

2. The case study method is a valuable tool for environmental training of high school and university students and in post graduate and specialised courses. There is urgent need to create an authentic body of knowledge and information-base for environmental education and these may be generated through case studies.

3. More emphasis should be given to the methodology and evaluation in environmental education programmes.

4. In planning environmental education curricula, due considera-

tion and persvective should be given to population growth, resource depletion, conspicuous consumption, pollution generation, lack of civic consciousness, and such other relevant issues.

5. A compendium of information relevant to environmental education, including a directory of sources of information about urban and rural resources and institutions, and listing of persons with appropriate expertise should be prepared and made widely available.

III. NON FORMAL EDUCATION

A. General

1. Environmental information must be dissemenated at all levels of the population, since in the ultimate analysis, only an environmentally conscious public can save the world from an environmental crisis.

2. Non-formal environmental education undertaken by governmental and non-governmental organisations, including youth organisations should be encouraged and supported by the Department of Environment.

3. Centres for non-formal environmental education Paryavaran Kendras must be established in urban and rural areas, especially in places where environmental degradation is beginning to set in.

4. The public should be made aware about the harmful consequences of human pressure on ecosystems (lakes, sanctuaries, hill areas etc), and particularly about the impact of tourism in such resorts.

5. In the Himalayan region, people have to be made aware of overgrazing by cattle, overexploitation of forests and unplanned development of roads, tourism and industries.

B. Training

1. Decision makers must be provided orientation training in environmental management.

2. The courses in management, namely business and engineering, should be reoriented to include topics on environmental management.

3. Courses on environmental management similar to the one

sponsored by the Department of Environment at the Staff College, should be started at other centres for training a large majority of administrators, policy makers and other target groups.

4. Training imparted should be based on local and regional problems and should also be need oriented.

5. For greater awareness and real learning, education should be based on environmental problems experienced by people.

6. Awareness of the industrialists about the potential harmful effects of their activities on the environment must be created and their sense of social responsibility awakened.

7. The public should be made aware of the increasing levels of food contamination in the country, especially by toxic chemicals.

8. Training programmes for Central and State services should incorporate environmental topics.

9. A series of refresher courses for planners, teachers decision-makers, political leaders and even ministers should be organised.

10. Nonformal environmental education should be integrated with programmes like family planning drives etc and should from part of the work of voluntary organisations in rural areas.

11. Environmental education should be included in the probation training of administrative, and other services, management trainees of companies, gram panchayat and block development officials, and such groups.

12. Environmental topics should be included in competitive examinations held by Public Service Commissions, Agricultural Recruitment Board, Banking Recruitment Boards, Armed Services Board, and etc.

13. Professional groups like teachers, doctors, engineers, planners and social scientists should be given refesher training in environmental issues.

14. Volunteers from non-governmental organisations should be trained in environmental education in order to equip them to carry out their work on correct lines.

15. Environmental education should be imparted through adult education programmes and organisations of youth like NSS and NCC may be made use of for this purpose.

16. In view of the close-relation between population growth and environmental damage, population education and environmental education programmes should be integrated and offered concurrently.

17. Special programmes and drives to make women aware of environmental issues and solutions should be undertaken, so that they, in their turn, may inculcate their children.

18. All educational institutions should be mobilised to undertake some kind of nonformal education, including environmental education.

C. Mass Media

1. Mass Communication media was recognised as a powerful and effective tool for spreading information about the environment.

2. Media personnel should be trained to become proficient in spreading environmental consciousness.

3. Mass Media, Press, Radio and TV, should develop and employ environmental education professionals.

4. Mass Communication techniques appropriate to the conditions of the target audience should be developed.

5. Traditional techniques of information dissemenation like folk plays, puppet shows, balladiers, etc should be used for environmental education.

6. Painting and essay competitions on environmentat topics should be organised nationally.

7. Posters depicting environmental situations should be produced and exhibited widely.

8. Travelling environmental exhibitions mounted on bullock carts, camel carts or vans should constantly and periodically tour through the rural areas.

9. Short, illustrated pamphlets, booklets, brochures on environ-

ment should be prepared by professionals and widely distributed.

10. Long distance rail passengers may be provided on entering the compartment, a booklet describing the ecosystem components and impact caused on them by human and animal pressure, along the route.

11. An attractive environmental information folder may be given to every tourist arriving in the country.

12. A Gandhian style mass movement or satyagraha for environmental protection may be started.

13. Stories, cartoons and playlets on environmental issues, should be produced.

14. Feature films dealing with environmental protection may be supported by the Films Finance Corporation.

15. Documentaries dealing with environmental questions of local, regional, national importance should be produced for exhibition through the cinema circuit.

16. All popular environmental materials. (books, periodicals, handouts, exhibits, films, posters etc) must be simultaneously produced in all the official languages in India.

17. Representatives of the people should be fed with suitable environmental literature.

D. Role of NGOs

1. A Directory of Governmental and Non-governmental organisations in the field of environment should be prepared.

2. All NGOs should include environmental education in their package of activities.

3. NGOs should catalyse public involvement in environmental programmes.

4. NGOs have a vital note to play in creating environmental awareness at all levels.

5. NGOs should begin a decade of consumer and environmental

education and involve youth organisations in their work.

6. NGOs should harmonise their activities with government bodies.

7. NGOs can and should undertake environment-based adult education.

8. The Department of Environment should provide a nodal point for NGO activities and act as a clearing house for information on NGO work in environmental education, action and programmes.

9. A newsletter of NGO efforts in the environmeatal field should be published.

III. STARTEGIES AT NATIONAL, REGIONAL AND INTERNATIONAL LEVELS

1. Training programmes in environmental management should be set up at the regional level by regional organisations and national governments.

2. Environmental considerations should be integrated into economic development plans at the national, regional and international levels.

3. Regional and international cooperation in and information exchange on environmental education should be fostered by UN agencies like UNEP, UNESCO, UNDP and regional organisation like SACEP, ASEP, SPREP etc.

4. Transfer of technology in environmental education, management and action between developed and developing countries and between developing countries should freely promoted.

IV. ACTION PLANS

1. A wide range of environmental education materials for different sections of society must be produced urgently. The Department of Environment should support this endeavour.

2. Research in appropriate technology for enveronmental education should be promoted.

3. Problem solving and action oriented case studies on environ-

mental issues of local significance should be taken up and instructional materials based on these prepared.

4. Surveys of present attitude of people towards the evironment should be carried out to serve as baseline index to gauge the impact of environmental education.

5. Pedagogic methodology for environmental education must be envolved in a scientific manner.

6. Curricula in environmental education suitable for different levels from preschool to university have to be developed, simultaneously with production of required text books, additional reading materials and audio visual aids.

7. Mass Media should produce professional material on environment for wide dissemination among the public.

8. NGOs should chalk out a national compaign for creating environmental awareness for target groups, with built-in periodical review and evaluation.

9. A information exchange network on environmeltal education should be set up at the national level.

10. A newsletter, or newsmagazine exclusively for environment should be brought out.

11. Every news daily and magazine should regularly carry articles of environmental interest written by professionals and trained journalists.

12. Social welfare departments must integrate environmental concerns in their programmes.

13. Health authorities should give priority to environmental health. They should prepare plans and schemes for preventive measures against environmental maladies and implement them conscientiously. They should also undertake environmental health education.

14. Persons with well developed environmental consciousness should be preferred in recruitment at all levels.

15. A National Committee or Board on Environmental Education should be set up by the Department of environment to promote environmental education programmes, to review progress and evolve required policy at the national level, giving due consideration to the recommendations of this conference.

16. The Department of Environment in conjunction with the Ministry of Education, should convene a meeting of Ministers of Education in the states, along with Secretaries of the Education Department and Directors of Education for adoption of a programme of environmental education in the schools.

17. NGOs should band together in implementing a coordinated environmental awareness compaign.

18. Mass Media should mobilise itself for a comprehensive environmental perception programme in a mutually reinforcing manner, using all media from TV to folk plays.

19. Information packs on environmental themes should be brought in different languages by NGOs with help from the Department of Environment.

20. A nationwide reorientation programme in environment for educators, teachers and other professionals should be started.

21. Appropriate training programmes in environmental management for target groups should be started by Department of Environment in association training institutions, universities, school systems, staff training centres, management institutes etc.

22. Teacher-training in environment should be stepped up by all teacher training centres.

23. Environmental awareness programmes for women should be started urgently.

24. Regional and international cooperative activities in environmental education, including speedy information transfer, should be given priority by UN and multilateral agencies.

25. The report and recommendations of the International Conference of Environmental Education should published without delay and widely distributed to governments, concerned government departments

and non governmental organizations in order to enable then to identify follow up areas of their interest and concern and implement the recommendations.

26. Education programmes in environment should be enmeshed with the population control movement and family planning education.

Resolution on the Organisation of an National Environmental Congress

The following resolution was adopted unanimously by the delegates to the International Conference on Environmental Education, 16-20 December 1981, New Delhi.

"The delegates to the International Conference on Environmental Education, discussed a proposal received from Prof. C. Karunakaran, Director, Centre for Earth Science Studies, Trivandrum, concerning the organisation of a National Environmental Congress. After detailed discussion, the Conference recommends that an Indian Environmental Congress Association may be set up in 1982. The design of the Congress may be on the following lines:

(i) The Congress may be organised once in two years at a suitable location, particularly in an area of the country, where serious environmental problems prevail. In the year preceding to the National Congress, Regional/State/Local Level Seminars/ Symposia/Workshops may be organised by affiliated environmental societies. The Local Level Seminars may be held in the language of the region, as far as practicable. The major points emerging from the Local Level Seminars will be collated and presented at the National Congress.

(ii) In order to organise this Congress at periodic intervals and to carry out other activities, such as the organisation of exhibitions and publication of bulletins, proceedings and newsletters, an Indian Environment Congress Association may be established. The membership of the Association should be open not only to individuals but also to professional bodies and institutions, District Rural Development Agencies, Scheduled Castes and Scheduled Tribes Corporations and Associations, mass education organisation like Kerala Sastra Sahitya Parishad, etc. The Association will function as a national consortium of all organisations and individuals interested and actively partici-

pating in environmental programmes. It could have as Associate Members similar societies in other countries, as for example the Asian Environmental Society, National Association for Environmental Education of the United States, etc.

(iii) *Government Support*: The Society should have appropriate linkages with the Department of Environment of the Government of India, which should be the nodal Department of Government dealing with all matters connected with the organisation of the Indian Environmental Congress. The Department of Environment may provide necessary grants to establish the Association, its permanent office, for organising meetings, Congress and for bringing out publications.

(iv) *Programme for the Congress*: Each National Congress should have a focal theme of relevance to the conservation and scientific utilisation of environmental assets. The focal theme should provide opportunities for an inter-disciplinary examination of the problem and to offer concrete suggestions, recommendations and action plans, for the consideration of State and Central Governments. The focal theme for the first Congress could be the "The State of Environment in India". In addition to the focal theme of discussion, there could be sectional examination of important topics, such as population pressures, pollution abatement, environmentally compatible development alternatives, endangered eco-systems, human settlements and habitat, mountain and ocean eco-systems, etc. The programme of the Congress should be structured in such way that discussions can be promoted on problem-solving lines, as far as feasible.

(v) *Inauguration*; The Association may invite the Prime Minister of India to inaugurate the Congress;

Follow up: The Congress recommends that in order to develop this proposal further and get the Indian Environmental Congress Association organised and registered, a follow up committee under the Chairmanship of Dr. M.S. Swaminathan may be constituted by the Department of Environment, which would provide the secretariat support. This committee should complete its work speedily so that the Association can come into existence as soon as possible.

These recommendations may also be communicated to be delegates of the Indian Science Congress during the forthcoming Session in Mysore from January 3-8, 1982."

The Delhi Declaration on Environmental Education

Adopted unanimously by the Delegates at the International Conference on Environmental Education, 16-20 December 1981 New Delhi.

The International conference on Environmental Education organised in New Delhi, India, from 16th to 20th December, 1981, by the Indian Environmental Society and the Department of Environment of the Government of India, with the active support from and participation of a number of other governmental and non-governmental agencies, including the agencies of the U.N. family, and representatives from several countries, on the basis of the deliberations of the Conference. taking into account:

(a) the present stage Environmental Education has reached, as a result of the national and international efforts since the Stockholm Conference of 1972, followed by the Belgrade Charter of 1975 and the inter-governmental conference at Tbilsi in 1977.

(b) the principles, methodologies and approaches being developed to promote Environmental Education at all levels of education, for all groups and citizens of all ages, through both formal and non-formal processes of education.

(c) the awareness to environmental problems of local and regional relevance promoted by the voluntary agencies, professional societies and non-governmental organisations for initiating appropriate remedial action programmes.

(d) the solemn declarations of national governments in adapting and enacting appropriate policies for expeditiously developing environmentally conscious actions in the context of various developmental programmes,

(e) the vast variety and extent of reliable and useful information generated by specific case studies on emerging environmental problem areas,

(f) the nature of teaching, training, research and extension programmes being currently strengthened in the school and university systems and in the R & D institutions, and

(g) the state of the world environment as surveyed by the U.N. Environment Program,

calls upon everyone concerned, individuals, groups, communities, national governments and national and international voluntary agencies to promote the cause of environmentally acceptable and sustainable development through all round environmental education compaigns and appropriate action plans.

2. The Conference draws particular attention to the fact that the goals of the U.N. development decades as well as the new international economic order cannot be realised without an accelerated pace of economic progress in developing countries. In order to achieve harmony between short and long term goals of development, countries will have to acquire the capacity to foster development without disruption of the ecological assets. Development paths must be chosen so that the environment is not degraged, its resources depleted, or ecological balance disturbed. This calls for a massive programme of environmental education, research and monitoring. The exploding population, the mounting consumption of the earth's resources, unwise and incompatible development goals, the uncertainty of prevailing peace all over the world, the shrinking forests and arable land, the marching deserts, the 'greed of the rich and the need of the poor',—all these place an impossible stress on the environment. At this rate of development, man and all living systems may run through the available resources for existence in a short time. Two well realised facts are sufficient to understore the environmental crisis.

(1) While half the world and two-thirds of the human population is reeling under the lack of basic minimum needs for survival, the rest of the world indulges in thoughtless, wasteful consumption of all resources like food, energy, and other renewable and non-renewable consumables. A more equitable distribution and utilization of such resources, as envisaged in the new international economic order, is the means to ensure environmental conservation. For, it would rule out wasteful over-consumption on the one hand and it would erase the environmental problems caused by underdevelopment.

(2) The sense of insecurity among world powers with the consequent compulsion to be prepared for all eventualities is another factor contributing to our present environmental concerns.

The obsession with weapons and military soultions to global problems has pushed arms budgets to US $550 billion a year. About US $100 billion of this outlay goes to the growing stockpile of nuclear weapons, which already is over one million times the explosive force of the Hiroshima bomb. Civilian productivity lags but military productivity is up smartly. The World War II submarine could sink only passing ships; now a single sub can destory 160 cities as far away as 4,000 miles. World military expenditures equal the annual income of the poorest half of the world's population.

3. The Conference fully supports the following views conveyed by the Prime Minister of India, Smt. Indira Gandhi, to the Conference participants through several of the participants who called on her on 18th December, 1981:

(a) Poor people live close to the earth. They will support and participate in environmental programmes only when they are convinced that the programmes would benefit them. Therefore, legislation alone is not adequate for achieving conservation goals. Legislation must be backed up by people's action, which can be generated only when people can see tangible economic benefits from conservation programmes.

(b) A reasonable chance of survival of children is essential for the acceptance of family planning methods.

(c) Both total disarmament as well as nuclear disarmament is essential to promote harmony and happiness among human beings.

(d) Environmental education should start from childhood so that the child becomes fully aware of the inter-dependence of the different components of the earth.

(e) Environmental education should be both through formal curricular methods in school and universities and through continuing education with the assistance of mass media.

(g) Those engaged in environmental education should help to arouse social consciousness and make the community aware of the fact that the good of the individual and that of the community are both harmed by ecological disruption.

4. The demographic composition of developing countries is such that a majority of the population belong to the younger age groups. The International Youth Year 1984, therefore, should be utilised effectively for environmentally desirable programmes such as tree planning, soil and water conservation, establishment of national parks and bio-sphere reserves and the restoration of damaged eco-systems.

5. Opportunities should be provided to youth for learning by doing in the field of environmental problems. Institutional devices, such as the organisation of eco-development camps, in 'Tree for Every Child' and the improvement of environmental sanitation could provide opportunities for learning through work experience. School children and university students as well as the non-student youth should be given appropriate environmental education. School teachers, particularly in rural areas, should be encouraged to make children familiar with the natural endowments of the area.

6. Non-governmental and voluntary organisations should encourage and involve people in protecting their own environments. Specialised institutions should give appropriate support by way of training, audio-visual aids and teaching material to such organisations.

7. Suitable environmental management education institutions should be set up where a cadre of Environmental Managers could be trained to assist programmes sponsored both by government and non-governmetal organisations.

8. Environmental orientation of all those concerned with the designing and implementation of large development projects such as industries, dams and irrigation schemes, thermal power plants, mining, agriculture, fisheries, etc., is urgently needed. Priority should be given in training programmes to policy-makers and administrators in charge of such large developmental projects.

9. Greater regional and international cooperation is essential in the field of environmental education, so that all the inhabitants of the speceship 'Earth' will become aware of the inter-dependence existing in basic life support systems.

10. Since 1982 will mark the 10th anniversary of the UN Conference on Human Environment at Stockholm, special efforts should be made to make people everywhere aware of the need to achieve optimum use of resources in their own countries, environmental conservation and coordinated action in protecting shared assets.

Epilogue

The success or failure of a conference like the present one is very much dependent on the dedicated behind-the-scene work of the volunteers, who were responsible for ensuring that the documents were got ready and distributed in time, attended to the various needs of the participants, arranged projection of audiovisual materials, and otherwise helped in the smooth progress of the sessions. We, on behalf of the Organising and Programme Committees, wish to place on record the deep appreciation of the smiling service of the volunteers.

The Organising and Programme Committees, the Indian Environment Society, and the Department of Environment acknowledge with gratitude the support received from various cosponsoring organisations, the assistance from many individuals, the members of the different committees, and the authorities of the Vigyan Bhavan, Indian Aricultural Research Institute, School of Planning and Architecture, and all the organisations who supported the conference. Above all, we wish to thank the many participants from India and all over the world for responding to our invitation by coming to Delhi, presenting thought-provoking papers, contributing to the discussions and cooperating with the organisers at all times.

Dr. S.Z. Qasim
Secretary
Department of Environment
Government of India
New Delhi.

M.S. SWAMINATHAN
Chairman,
Organizing Committee, ICEE

ANNEXURE I

ORGANISING COMMITTEE

Organising Committee

Chairman

Dr. M.S. Swaminathan, F.N.A., F.R.S.
Member, Planning Commission

Programme Committee

Chairman

Dr. S.Z. Qasim, F.N.A.
Secretary, Department of Environment

Reception Committee

Chairman

Dr. H.K. Jain, F.N.A.
Director, Indian Agricultural Research Institute

Finance Committee

Chairman

Dr. S.N. Saraf
Education Advisor, Planning Commission

Members of Above Committees

Dr. V. Ramalingaswamy, F.N.A.
Director-General, ICMR

Dr. D. Shankar Narayan
Addl. Secretary, University Grants Commission

Professor Bijit Ghosh
Director, School of Planning and Architecture

Shri Digvijay Sinh, M.P.

Shri Samar Singh
Joint Secretary, Ministry of Agriculture

Professor S. Radhakrishna
Scientific Secretary, COSTED

Dr. S.K. Mitra
Director, NCERT

49

Professor S. Krishnaswamy
Vice-Chairman, SCOPE

Dr. N.L. Ramanathan
Director, Department of Environment

Dr. M. Vannucci
Acting UNESCO Representative to India

Dr. R. Sen Gupta
Asst. Director, National Institute of Oceanography

Mr. M.R. Malhotra
Senior Programme Officer, UNDP

Professor S.C. Pandeya, F.N.A.
Saurashtra University

Professor Indra P. Singh
University of Delhi

Mr. Brij Kishore
Deputy Secretary
Department of Environment

Mr. K.V. Mahalingam
Deputy Secretary
Department of Environment

Dr. J.S. Singh
Kumaon University

Dr. Amrita Patel—WWF-India

Shri S.K. Sahni
Project Coordinator, INSA

Dr. Nicholas H.B. Hughes
Programme Officer, F.A.O.

Shri Duleep Matthai—WWF-India

Dr. J.L. Bhat
Indian Environmental Society

Dr. Ravi Sharma
Indian Environmental Society

Dr. R.K. Garg
Indian Environmental Society

Dr. Veena Bhardwaj
Indian Environmental Society

Organising Secretary

Dr. Desh Bandhu
Secretary-General, Asian Environmental Society

ANNEXURE II

PROGRAMME

DECEMBER 15, 1981 10.00—16.00	REGISTRATION
DECEMBER 16, 1981 9.30—10.45	(COMMISSION ROOM 'G') INAUGURAL SESSION: WELCOME Dr. M.S. Swaminathan Chairman, Organising Committee ADDRESS BY Dr. N.L. Ramanathan Director, Dept. of Environment ADDRESS BY Dr. Jun Ui President, Asian Environmental Society INAUGURAL ADDRESS BY Professor B.P. Pal, F.N.A., F.R.S. ADDRESS BY CHIEF GUEST Shri C.P.N. Singh Minister of State for Environment VOTE OF THANKS Dr. Desh Bandhu Organising Secretary, ICEE
10.45—11.15	TEA
11.15—13.00	SESSION—I Significance and Importance of Environmental Education CHAIRMAN: Dr. B.B. Sundaresan

RAPPORTEUR: Dr. Mohamed Kamel, Egypt.

KEY NOTE ADDRESSES

11.15—11.35	—Dr. (Mrs.) Madhuri R. Shah, Chairman, University Grants Commission
11.35—11.55	—Dr. Margaret Biswas and Dr. Asit. K. Biswas International Water Resources Association.
11.55—12.15	—Professor R. Misra Banaras Hindu University
12.15—12.35	—Mrs. Julia Marton-Lefevre Deputy Chairman Commission on Education, IUCN
12.35—13.00	DISCUSSION
13.00—14.30	LUNCH
14.30—16.00	SESSION—II Environmental Education: Strategies at National Regional and International Level. CHAIRMAN: Dr. Asit K. Biswas, England RAPPORTEUR: Dr. Suraphol Sudara, Thailand
14.30—14.45	—Role of Research and Development Institutes on Environmental Education B.B. Sundaresan
14.45—15.00	—Role of Universities in Environmental Education D. Shankaranarayan

15.00—15.15	—Present Status of Environmental Education in the Asian Region W.D. Ponniah, Thailand
15.15—15.30	—American Environmental Education in the age of Accountability Craig B. Davis and R. Thomas Taner, U.S.A.
15.30—15.45	—People's Participation in Environmental Action—Malaysian Experience Rajeandran, Malaysia
15.45—16.00	DISCUSSION
16.00—16.30	TEA
16.30—17.15	POPULAR LECTURE Environment and Agriculture Dr. H.K. Jain Director, IARI
17.15—18.00	Films and Slides on Environment

DECEMBER 17. 1981

9.00—10.00	Discussion on the Organisation of a National Environmental Congress (Commission Room 'D')

SESSION III in COMMISSION ROOM 'G'

SESSION IV in COMMISSION ROOM 'D'

10.00—11.15	SESSION III Environmental Education at the Pre-School, School and University stages CHAIRMAN: Dr. S.K. Mitra RAPPORTEUR: Mr. Rajeandran, Malaysia
10.00—10.15	—Environmental Education at School Level B. Sharan

10.15—10.30	—Involving Rural Children in Environment and Development Issues: A Case Study from Kenya Davinder Lamba and Dina Lee Smith, Kenya
10.30—10.45	—Teacher Preparation for Environmental Education T. Chelliah, Malaysia
10.45—11.00	—An Experiment in Implementation of Environmental Approach at Primary Level J.S. Rajput and other
11.00—11.15	DISCUSSION
11.15—11.30	TEA
11.30—13.00	SESSION III (Cont.) CHAIRMAN: Dr. N.L. Ramanathan RAPPORTEUR: Dr. Richard Tucker, U.S.A.
11.30—11.45	—Environmental Education in Teachers Training Programmes M.V. Ramji and A.L.N. Sarma
11.45—12.00	—Environmental Education Programmes for Schools R.P. Shetye
12.00—12.15	—Strategies for Using Extra-curricular Activities in Science for spread of Environmental Education S. Bhatacharya
12.15—12.30	—Environmental Education through Aerial Photographs-Experience with Dehradun Students P. Misra and others

12.30—12.45	—Relevance of the Study of Aquatic Ecosystem in the Context of Environmental Science Education A.L.N. Sarma and others
12.45—13.00	DISCUSSION
13.00—14.30	LUNCH
14.30—16.00	SESSION III (Cont.) CHAIRMAN: Professor Bijit Ghosh RAPPORTEUR: Dr. M.H. Wong, Hong Kong
14.30—14.45	—Environmental Education An Over View R. Arora and G.N. Pandey
14.45—15.00	—Scheme for Nature Education in Gujarat State M.A. Rashid
15.00—15.15	—Schematic Representation of Environmental Education in Hills with Special Reference to Garhwal Himalyas. B.P. Nautiyal
15.15—15.30	—Environmental Education in Thailand Suraphol Sudara
15.30—15.45	—A learning Experience in Environmental Education S. Shanmuganandan
15.45—16.00	DISCUSSION
16.00—16.30	TEA
	SESSION IV
10.00—11.15	Role of Adult Education and Education Programmes for Policy Makers, Administrators.

CHAIRMAN: Dr: Michael H. Robinson, U.S.A.

RAPPORTEUR: Dr. Brij Gopal

10.00—10.15	—Environmental Management Education: An Indian Experience. —N.L. Ramanathan and B. Bowonder
10.15 – 10.30	—Environmental Education—Awareness and Sensitivity. S.K. Sharma
10.30—10.45	—Role of Environmental Education in Society. M.L. Sharma and others
10.45—11.00	—Environmental Science and Future of Mankind. O.N. Srivastava
10.00—11.15	DISCUSSION
11.15—11.30	TEA
11.30—13.00	SESSION IV (Cont.) CHAIRMAN: Dr. Jun Ui, Japan RAPPORTEUR: Dr. J.L. Bhat
11.30—11.45	—Environmental Education and Role of Mass Media S. Khan and others
11.45—12.00	—A Proposal for Mass Education on Environment R. Verma and R.R. Das
12.00—12.15	—A Study of Environmental Awareness Among Children of Rural and Urban Schools and Non-formal Education Centers V.P. Gupta and others

12.15—12.30	—Environmental Education for Pastoral Communities of Alpine Zone of Central Himalayas Archana Naithani
12.30—12.45	—Role of Education in Generating Environmental Awareness among Public G.S. Vijayalakshmi
12.45—13.00	DISCUSSION
13.00—14.30	LUNCH
14.30—16.00	SESSION IV (Cont.) CHAIRMAN: Mr. Jyoti Singh, U.S.A. RAPPORTEUR: Dr. G.S. Lavania
14.30—14.45	—Analysis of the Problems in Environmental Education Anil Sadgopal
14.45—15.00	—Environmental Education as Component of all Education A.K. Jalaluddin
15.00—15.15	—Teaching-Learning Strategies for Environmetal Education J.S. Gill
15.15—15.30	—Significance of Environmental Education K.V. Devasia
15.30—15.45	—Environmental Research in Universities R. Subramanian
15.45—16.00	DISCUSSION
16.00—16.30	TEA

16.30—17.30 WORKING GROUPS

COMMISSION ROOM 'G'

—Environmental Education—Cooperation Plans and Programmes

CHAIRMAN:
Dr. Craig Davis

RAPPORTEUR:
Dr. R.K. Garg

COMMISSION ROOM 'D'

—Population and Environmental Education

CHAIRMAN:
Dr. David Poindexter

RAPPORTEUR:
Dr. Veena Bhardwaj

17.30—18.15 COMMISSION ROOM 'G'
Popular Lecture

SAVE THE SOIL: SAVE THE NATION
Dr. J.S. Kanwar

18.30 RECEPTION

DECEMBER 18, 1981

COMMISSION ROOM 'G'

10.00—11.00 CHAIRMAN:
Shri B.B. Vohra,
Chairman, N.C.E.R.

ADDRESS BY:
Dr. Peter Thache
Deputy, Executive Director, UNEP, Nairobi.

11.00—11.30 TEA

11.30—13.00	SESSION V (COMMISSION ROOM 'G') Case Studies on Environmental issues CHAIRMAN: Dr. D. Shankar Narayan REPPORTEUR: Mr. Davinder Lamba, Kenya
11.30—11.45	—Role of Education in Generating Acceptance on Water Front Gyan Sagar
11.45—12.00	—Ghana Bird Sanctuary Bharatpur– A Case Study in Need of Environmental Education for Decision Makers Brij Gopal
12.00—12.15	—Environmental Lead Exposure as a Human Problem in India C.B. Pandaya and others
12.15—12.30	—Dal Lake– Past, Present and Future D.P. Zutshi
12.30—12.45	—Changing Ecology and Conservation of Dal Lake in Relation to increasing Human Impact V. Kaul
12.45—13.00	DISCUSSION
13.00—14.30	LUNCH
14.30—16.00	SESSION V (Cont.) CHAIRMAN: Dr. Arthur Sacks, U.S.A.
14.30—14.45	—Environmental Pollution Control and Who Pays for it Anjani Kumar Agarwal

14.45—15.00	—Review of the Major Environmental Cases Occured in Taiwan. Eddie Yu
15.00—15.15	—Bataan Nuclear Power Issue Sr. Ma Aide Velasques, Philippines
15.15—15.30	—Slash and Burn Agricultural System-A Model for Understanding Basic Ecological Principles P.S. Ramakrishnan
15.30—15.45	—Education Necessary for A Scientific Assessment of Environmental Impact of Water Development Projects. K.V. Krishnamurthy.
15.45—16.00	DISCUSSION
16.00—16.30	TEA
11.30—13.00	SESSION VI (COMMISSION ROOM 'D') Curriculum, Pedagogic Methods and Value Orientation CHAIRMAN: Dr. S.N. Saraf RAPPORTEUR: Sr. Ma Aide Velasquez, Philippines
11.30—11.45	—Value Orientation and Environment Swami Yuktanand
11.45—12.00	—The Role of Humanities in Interdisciplinary Environmental Education Arthur B. Sacks, U.S.A.
12.00—12.15	—Institutionalized Discontentment and A Case for Simplicity Sehdev Kumar Gupta, Canada
12.15—12.30	—Treating Environment As A System of Alternative Education G.S. Puri, U.K.

12.30—12.45	—Preserving the Quality of Life-From an Ecophysical Point of View B.C. Panda
12.45—13.00	DISCUSSION
13.00—14.30	LUNCH
14.30—16.00	SESSION VI (Cont.) CHAIRMAN: Dr. Wimala Ponnaih, Thailand RAPPORTURE: Dr. O.N. Srivastava
14.30—14.45	—A Report on the Ecological Impact of Ujjain Urban Area on its Population and Aquatic Bodies. K.S. Rao and Suresh Jain
14.45—15.00	—Social Fencing and Institutionalisation of Green Gold Farming in the Himalayas P.R. Misra
15.00—15.15	—The Philosophy and Practice or Environmental Education in the Tropics: A Critical Assessment Michael H. Robinson, U.S.A.
15.15—15.30	—Poverty and Environment K.K. Khatu and A.R. D'Souza
15.30—15.45	—Need for Global Environmental Policy for Using Fossil Fuels R.C. Gupta
15.45—16.00	DISCUSSION
16.00—16.30	TEA
16.30—17.30	Slides and Films on Environment

17.30—18.30	MASS MEDIA AND ENVIRONMENTAL EDUCATION CHAIRMAN: Dr. M.S. Swaminathan KEY NOTE ADDRESS: Shri H.Y. Sharda Prasad, Press Advisor to Prime Minister
18.30—20.00	Slides and Films on Environment
20.00	DINNER

DECEMBER 19, 1981

6.00—20.00	Field Trip to Bharatpur Bird Sanctuary. The buses will start at 6.00 hrs. and will be back at 20.00 hrs. All Registered participants are invited. Details of the Programme will be circulated.

DECEMBER 20, 1981

(COMMISSION ROOM 'G')

9.30—10.00	ADDRESS BY: Dr. Ashok Khosla, Dirctor, INFOTERA UNEP, Nairobi
10.00—11.15	SESSION VII & VIII ACTION PLANS CHAIRMAN: Prof. S.K. Gupta, Canada RAPPORTEUR: Dr. Kasem, Chunkao. Thailand
10.00—10.15	—Role of Non Governmental Organisations on Environmental Education Desh Bandhu
10.15—10.30	—The Sierra Club and Global Environmental Education Richard Tucker, U.S.A.

10.30—10.45	—Role of Kerala Sastra Sahitya Parishath in Environmental Education M.K. Prasad
10.45—11.00	—Youth Eco—Development Camps for Environmental Education M.D. Tawde and A. Jagdale
11.00—11.15	DISCUSSION
11.15—11.30	TEA
11.30—13.15	SESSION VII & VIII (Cont.) CHAIRMAN: Dr. Ashok Khosla, Nairobi RAPPORTEUR: Dr. T. Chellaih, Malaysia
11.30—11.45	—Ten Years after 72 in Japan Jun Ui, Japan
11.45—12.00	—Education for Survival and Development: An Action Proposal A. Misra
12.00—12.15	—Chipko Movement: Environmental Education Chandi Prasad Bhat
12.15—12.30	Environmental Education and Rural Development in Thailand Kasem Chunkao, Thailand
12.30—12.45	—Women and Energy Mohamed Kamel, Egypt.
12.45—13.00	—Youth Environmental Education and Awareness Tommy Kwik, Singapore

13.00—13.15	—Environmental Education and Politics Digvijay Sinh
13.00—13.30	DISCUSSION
13.30—14.30	LUNCH
15.30—17.00	CONCLUDING SESSION RECOMMENDATIONS and FOLLOW-UP CHAIRMAN: Dr. M.S. Swaminathan Chairman, Organising Committee RAPPORTEUR: Dr. Desh Bandhu, Organising Secretary I.C.E.E.

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ANNEXURE-I

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